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10/559,865	12/07/2005	Stefan Haaks	2003P08356wous	7446

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Siemens Corporation  
Intellectual Property Department  
170 Wood Avenue South  
Iselin, NJ 08830

EXAMINER
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LAUGHLIN, NATHAN L

ART UNIT	PAPER NUMBER
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2123

MAIL DATE	DELIVERY MODE
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03/12/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/559,865	<b>Applicant(s)</b> HAAKS ET AL.	
	<b>Examiner</b> NATHAN LAUGHLIN	<b>Art Unit</b> 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 41, 42 and 44-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### **Final Action**

This action is in response to the remarks filed on 12-03-08.

Claims 41-42, and 44-49 are pending.

Claims 41-42, and 44-48 are presented for examination.

### ***Claim Objections***

1. Claim 41 objected to because of the following informalities:

Claim 41 states "...a set of different industrial process variables". It's unclear what the variables are different from. Applicant's explanation in the remarks lead the Examiner to believe that there are multiple, distinct variables in existence in the set. However, that is not apparent from the term "different". Examiner suggests replacing "different" with, "two or more distinct", if that is indeed Applicant's intention and is supported by Applicant specification.

Claim 41 states "determining time correlation between the failure indication and any other deviation in the other measured variables;". It's unclear to the Examiner what "the other measured variable" encompasses and how it is different from "the selected variables".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 49 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 41 defines a set a of variables and then goes on to use the terminology "the selected variables" (line 16 for example) to refer to the variables, but in claim 49, Applicant uses the terms "the different measured process variables" it is unclear to the Examiner if this is the same elements, and if so Examiner suggest using the same phraseology throughout the entire claims. If not, Examiner requests an explanation on what this element is.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 41-42, 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popp (U.S. Pat. 7,130,709) in view of Simonetti (U.S. PG Pub. 2002/0176617) in further view of Card (U.S. Pat. 6,970,857).

As to claim 41, Popp teaches a method for determining causes of failures in industrial processes, comprising:

selecting a set of different industrial process variables for analysis (col. 3 lines 61- col. 4 line 34) (fig. 4A elements 1104 and 1108, both elements can read in different variables of the production line i.e. 1108 can have an edge detection system while 1104 can inspect overlap between fastening components);

measuring the selected variables at selected measuring points on a production line over time until a failure indication is detected in one of the variables (col. 3 lines 61- col. 4 line 34, col. 21 lines 41-63, col. 28 lines 1-30 ) (fig. 4a);

determining correlations between the failure indication and any deviations in the other measured variables (col. 49 line 63- col. 50 line 14);

excluding correlations that indicate a consequential effect, and not a cause of the failure indication, and determining the cause of the failure indication without a need for detecting a second failure (col. 49 line 63- col. 50 line 14);

working-out corrective measures to eliminate the cause of the failure indication;

evaluating the corrective measures technically (col. 28 lines 1-30, col. 49 line 63- col. 50 line 14); and

wherein the production line comprises an automation system and control bus that automate the production line, and wherein the measuring of at least some of the selected variables is performed directly from at least some of the measuring points on the production line without passing through the control bus (fig. 9 and 11).

As to claim 45, Popp teaches wherein the evaluation system continuously performs elimination routines to isolate variables directly related to the failure to determine the location on the production line of the failure (col. 28 lines 1-30, col. 49 line 63- col. 50 line 14).

As to claim 46, Popp teaches determining if a sub-process in the industrial process is the location of the failure to determine the cause of the failure (col. 28 lines 1-30, col. 49 line 63- col. 50 line 14).

As to claim 47, Popp teaches determining if the cause of the failure is located in the sub process, and evaluating the sub process to determine a root cause of the failure (col. 28 lines 1-30, col. 49 line 63- col. 50 line 14).

As to claim 48, Popp teaches further comprising correlation data to a service provider that provides service in the event of a failure in the industrial process to correct the failure (col. 28 lines 1-30, col. 49 line 63- col. 50 line 14).

As to claim 49, Pop teaches that a failure can be determined and correlated downstream so the system is aware that the same failure is being viewed (col. 28 lines 1-30, col. 49 line 63- col. 50 line 14).

Popp teaches some of the claimed invention including the limitations of claims 41, and 45-48. Popp teaches that failures are prioritized by logical importance in terms of their respective relationships to a most likely root source. That is, if the failure is detected at multiple places prioritizing the first place the failure was detected. Popp differs from the invention as recited in claim 41 and 42 in that the combined disclosure or teaching fails to disclose or teach the following:

As to claim 41 and 49, time correlating the failure.

As to claim 42, wherein the production line produces a continuously moving web of material, and further comprising determining a relative time offset for each of the selected measuring points based on a speed of the web passing through the production line, and applying the time offsets to the selected variables to correlate deviations in the variables that are offset in time to locate a position of a failure on the production line.

As to claims 41, 42 and 49, Simonetti teaches that failures can be time corrected and using the speed of the web can be stamped and it can be determined the exact time when a failure location will pass by a certain piece of equipment, and outputting the process variables correlating with the time and location of the failure [0032, 0048].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was created to include teachings of Simonetti into the teachings of

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Popp. The motivation to combine is Simonetti teaches using a time stamp along with a camera inspection system a precise location of a defect can be known for post processing device, such as monitoring or correction [0032, 0046, 0048].

Popp in view of Simonetti teach most of the claimed invention including the limitations of claims 41, 42, 45-48. Popp teaches that failures are prioritized by logical importance in terms of their respective relationships to a most likely root source. That is, if the failure is detected at multiple places prioritizing the first place the failure was detected. Popp differing from the invention as recited in claim 41 in that the combined discloser or teaching fails to disclose or teach the following:

As to claim 41, evaluating the corrective measures and selecting and implementing an optimum one of the corrective measures on the production line.

However, Card teaches the following:

As to claim 41, Card teaches using an economical analysis of a corrective action; and selecting and implementing an optimum one of the corrective measures (col. 5 lines 36-46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was created to include the teachings of Card into the system and methods of



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Popp further modified by Simonetti, the motivation to combine is Card teaches using a optimizer when multiple corrective action are present and yield the corrective action with the lowest cost (col. 5 lines 36-46).

5. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Popp (U.S. Pat. 7,130,709) in view of Simonetti (U.S. PG Pub. 2002/0176617) in further view of Card (U.S. Pat. 6,970,857) and in further view of Buda (U.S. Pat. 6,611,724).

Popp in view of Simonetti further modified by Card teach most of the claimed invention including the limitations of claims 41, 42, 45-48. Popp, Simonetti, and Card differing from the invention as recited in claim 44 in that the combined disclosers or teachings fails to disclose or teach the following:

As to claim 44, wherein the measuring step comprises time-stamping samples of the selected variables using a time signal from a global positioning system receiver connected to the measuring and evaluation system.

However, Buda teaches the following:

As to claim 44 Buda teaches wherein the measuring step comprises time-stamping samples of the selected variables using a time signal from a global positioning

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system receiver connected to the measuring and evaluation system stamp (col. 9 line 61- col. 10 line 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the time-stamping of Buda into the system as described by Popp in combination with Simonetti further modified by Card. The motivation to combine is Buda teaches that using a GPS for time stamping results is very accurate. (col. 9 line 61- col. 10 line 7).

### ***Response to Arguments***

6. Applicant's arguments filed 12-03-08 have been fully considered but they are not persuasive.

As to the remarks on page 4, Applicant responses to the rejections under 35 USC 102(e), Examiner notes that no rejection under 102(e) was actually given. Examiner assumes that Applicant is responding to the rejection in 35 USC 103(a). This seems to be an unintentional typographical error. However, if Examiner is mistaken, clarification is requested.

Applicant cites Popp and explains the citations, then states that Applicant system projects backwards to the source of an error based on time correlations in claims 41, 42 and 49) , but does not specifically point out limitations that Popp does not teach. Applicant states that the invention can find an upstream location on a production line that is a source of a later deviation by correlating multiple process variables and

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projection backwards to a convergence of these variables. This may be, but it is not explicitly stated like this in the claims, therefore this cannot be taken into considerations since it is not in the claims as such. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., can find an upstream location on a production line that is a source of a later deviation by correlating multiple process variables and projection backwards to a convergence of these variable) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Examiner suggested adding this limitations as stated above to the claim 41 if Applicant is seeking coverage for those limitations.

Applicant does state that Popp teaches that the same measured variable is just taken multiple times. Applicant agrees that vision system (1104) can take multiple reading of the same variable, however, Popp shows that other inspection systems are available for use in the system (fig. 4a element 1108). Popp teaches that using the vision system other deviations from different variables can be accounted for and adjusted (col. 29 line 31- col. 30 line 5).

As to the arguments on page 6, Popp does show that if a measured anomaly is seen at multiple points it is logical to analysis the root cause near the first place the anomaly was seen (col. 50 lines 8-12). That is, it is clear to one of ordinary skill in the art that it can logically be seen that the downstream correlations can be excluded since the anomaly has already been seen upstream and clearly originates there.

As to claims 46-47, Pop does in fact teaches using sub-process that can be the root cause of a failure (col. 28 lines 1-30, col. 49 line 63- col. 50 line 14). Such as, certain machine and the setting of the inputs can be incorrect, which means the process of that machine can be the root cause of the failure due to the incorrect settings.

Applicant states that Simonetti would not improve Popp because it predicts a defect later on. Examiner disagree; Simonetti would improve Popp since it can predict when an anomaly will be seen later on downstream, that is it enhance the system of Popp so it will know if an anomaly is new or if it and already detected anomaly. So if it is a new anomaly the system can find the root cause, and if not the system does not try to find the root cause again wasting computing power.

As for the arguments on the bottom of page 6, seem to be very explicitly explanation of the limitations "wherein the production line comprises an automation system and control bus that automate the production line, and wherein the measuring of at least some of the selected variables is performed directly from at least some of the measuring points on the production line without passing through the control bus" However, Examiner reiterates that figures 9 and 11 clearly show this. It can be seen that "wherein the production line comprises an automation system and control bus that automate the production line fig. 9 element 1406, and wherein the measuring of at least some of the selected variables is performed directly from at least some of the measuring points on the production line without passing through the control bus (fig. 9 element 1404). The measurements come from 1404 and go to 1110 without ever going to or through the drive system of the bus connecting to the drive system.

Therefore, the Examiner has established a prima facie case of obviousness of the claimed invention and the claims remain rejected as above.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN LAUGHLIN whose telephone number is (571)270-1042. The examiner can normally be reached on M - F, 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nate Laughlin/  
Examiner, Art Unit 2123

/Kideest Bahta/

Primary Examiner, Art Unit 2125